Working in online groups—the challenges of virtual integrated learning environments

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Abstract

Universities continue to struggle with the need to combine the pedagogical benefits of collaborative learning with large-scale, interactive and technologically sophisticated learning and teaching approaches and support systems. This challenge requires imaginative approaches if the outcome is not to be the 'worst of both worlds'; that results in confusion and disillusionment among students. This paper presents three case studies that use online technologies to provide collaborative teaching solutions, arguably much superior to that possible without an online intervention.

Keywords

pedagogical, collaborative learning, teamwork, integration

Introduction

Several approaches to the integration of 'working in groups' and the 'virtual environment' have been developed within the Queensland University of Technology (QUT) Online learning and teaching (OLT) system utilising the 'Group Work Area Resource'.

This paper focuses on three cases, each designed to illustrate a different 'coming together' of group activity facilitated through the online environment. Each of the cases is facilitated through the Group Work Area Resource developed within OLT (the QUT online learning and teaching content/learning management system). These cases describe approaches to 'collaborative learning', defined here as an approach that seeks to have students, at various performance levels, work together in small groups. The three case studies are outlined below.

1. The use of an online Magazine Metaphor where students have been grouped in relation to editions of a magazine and explored options for the development and sharing of collaborative experiences.
2. The development of an online collaborative learning system to structure and facilitate group work for university projects. At QUT, a number of such systems have been designed to organise the interaction of the group towards specific learning outcomes. The case discussed here examines a system that was developed to guide and facilitate interaction between various groups involved with the organisation of a nightly television news program.
3. Groups of One—providing a secure online space for student reflections of the journey of their study. A postgraduate virtual environment will be discussed in relation to public and private virtual collaborative learning spaces.

The importance of collaborative learning approaches

There is significant literature that attests to the success of the 'collaborative learning' approach in producing enhanced learning outcomes for students (Palloff & Pratt, 1999; Brook & Oliver, 2003). Such success is heightened where participants are responsible for the learning of others, as well as their own achievement. Johnson and Johnson (1986) argue that students who work in such groups show greater interest and understanding, and retain more of the subject matter, than others who pursue information through individual study approaches. Totten, Sills, Digby and Russ (1991) suggest that this 'shared' or 'collaborative learning' engages students in discussion, and encourages them to take responsibility for their own learning.

Such learning through interacting and 'doing' is part of the QUT 'University for the real world' approach and the Group Work Area Resource is one of the OLT resources designed to facilitate group collaboration activities that give practical embodiment to such understandings. The origins of the Group Work Area Resource are found in theories of Virtual Learning Environments, but the system expands on the original models that guided development in this area. The Group Work Area Resource is more readily situated under the heading of 'Virtual Integrated Learning Environments'.

Virtual integrated learning environments

The development of the Group Work Area Resource involved consideration of Oliver's (2001) description of critical elements of online learning settings (see Table 1), along with essential attributes for effective teamwork, such as communication (Harris & Harris, 1996), interdependence (Johnson & Johnson, 1999), leadership (Bradley & Frederic, 1997), and accountability (Smith, 1996).

Learning design elements	**Description**
Learning tasks	The activities, problems, interactions used to engage the learners and on which learning is based.
Learning resources	The content, information and resources with which the learners interact and upon which learning is based.
Learning supports	The scaffolds, structures, encouragements, motivations, assistances and connections used to support learning.

Table 1: Framework describing critical elements of online learning settings

(Oliver, 2001, p. 407)

However, as suggested in the abstract, many virtual learning environments might fail to integrate student learning experiences, both producing social isolation and denying the benefits of collaborative learning. Virtual integrated learning environments, on the other hand, have the potential to fully exploit theories of social and active learning (Vygotsky, 1978) through cooperative and collaborative activities (Tiffin & Rajasingham, 1995). Such activities require a learning community where the virtual environment involves more than a few hypertext links, but can facilitate the sharing between students and academics of common tasks, and can build interdependent relationships (Palloff & Pratt, 1999).

Sudweeks (2003, pp. 14–45), in the article 'Promoting cooperation and collaboration in a web-based learning environment, *InSITE* journal, noted that:

> Working with students drawn from a wide spectrum in terms of location, access to campus facilities and cultural backgrounds is difficult. Engaging this diverse group of students in social interaction to facilitate learning through cooperation and collaboration is enormously difficult.

The creation of such a learning community involves supporting students and academics (Subject Matter Experts, SME's) in their efforts to share common tasks and build interdependent relationships. The Group Work Area Resource was designed for such a task. An outline of its features and functioning is provided below.

An overview of the Group Work Area Resource

The Group Work Area Resource enables Subject Matter Experts (SME's) to create pages in OLT in which groups of users can work, whilst controlling access to these group pages.

Technical features of the Group Work Area Resource:

- SME's can establish groups within an OLT page.
- The size and number of groups of users is established by the SME.
- Users can self nominate, that is, join a group. (This is important as active participation in group selection is seen as advantageous for the motivation of users.)
- SME's can generate a group report which details group membership.
- Users can be allocated to a group by the SME.
- An email link is created automatically allowing group members to email all other group members.
- A single html page is created for each group. The members of each group can only see the resources in their html page when they visit their group work area.
- SME's can delegate control of the online learning environment to the group members, that is, group members can add additional material to their group work area without SME assistance.

Learning benefits of the Group Work Area Resource:

Integration of the group work area tool to develop collaborative learning practices:

- develops communication skills
- develops team work skills
- encourages student responsibility of their learning environment; and promotes a stronger social support system.

Feedback obtained during the trial of this resource from various faculties via questionnaires and meetings, indicated that students learning was enhanced from the instructional design of both the learning environment within a group work area and the collaborative activity, without meeting face to face. This paper presents three cases from which such conclusions are taken and all of which involve varying degrees of interaction that are conducted without face-to-face contact. The contexts, challenges and solutions to the virtual integration of learning environments are documented.

Case 1—An online magazine

Context

The Creative Industries discipline area, Music, offered a unit entitled 'Sex, Drugs and Rock and Roll' to 176 students in Semester 1 2004. The title of this unit is taken from a well-known popular song and indicates the relationship that music has to its time. As the century turns, the directions that music has taken have become fragmented. There is no longer one discernible trend in both art and popular music. There are many musical subcultures where heavy metal sits cheek by jowl with new age trance, and minimalism is contrasted to new complexity. The influences that have gone to create this network of styles are not only musical, but relate to gender, social and economic issues, technology, politics and culture.

An assessment item for the unit was the production of a critical 300-word response on a contemporary music artist. In the past the 300-word response was simply uploaded into a web page on the OLT system.

Challenge

The challenge was to establish a structure whereby 176 students could successfully participate in an online collaborative activity to submit their 300-word response and to then provide an environment where these article responses could be shared across differing groups of students.

Solution

The students were split up into approximately six online groups, 30 members in each group. Each group was responsible for the production of an issue of the online magazine, *Sex, Drugs and Rock and Roll* in the style of *Rolling Stone* magazine. The Group Work Area Resource was used to establish this online secure space for each edition of the magazine to be created. The metaphor of the music magazine was utilised in order to provide a real world context for the activity and to also enhance motivation. Illustration 1 shows the structure of the online collaborative learning environment.

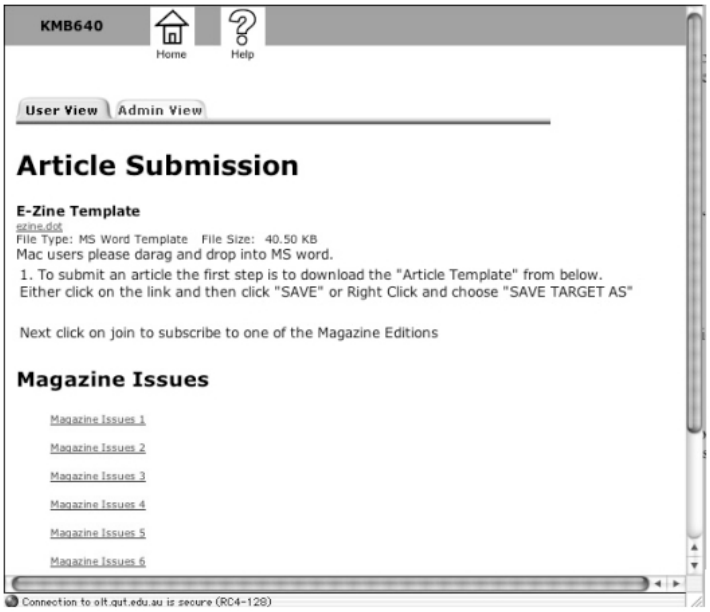

Illustration 1: Screen capture of the online magazine metaphor

Each group produced an edition to the magazine by firstly downloading the article template provided by the lecturer, writing the 300-word response including pictures where appropriate and then uploading the article into the group work area. Because each group work area was only visible to the students that were members of the group, anticipation regarding the content of the other group work areas enhanced the motivation of the students participating.

After all articles were submitted, all editions of the magazine were made available to all students by removing the security for each group work area. Students were then asked to participate in an online discussion forum reflecting on both the process and content of the magazine issues. Reflection indicated within the discussion forum postings that both the process and use of the online collaborative system contributed to enhanced time-on-task and participation. Various discussion contributions noted the integration between face-to-face material presented and the material uploaded through this online collaboration.

Case 2—An online roster

Context

The QUT Journalism course incorporates processes within which journalist students test the theory that they have learnt through academic discussion and reflection, under the circumstances that prevail in the industry in which they wish to work. To the casual observer, the smooth operation of television and radio newsrooms (students produce half-hour live programs for public consumption) would indicate that the students who report and produce the story inserts for broadcast are veterans for whom the performance of the requisite tasks, and the interaction with others that this requires, have become second nature. Such an impression of an ‘ease of accomplishment’ borne of long experience is, however, misleading. Pedagogical collaborative approaches have been utilised (in line with the theories of Johnson and Johnson (1986)) wherein the system allows collaborative learning approaches that facilitate senior students mentoring junior peers, as well as being responsible for their own achievement. This approach is designed to maximise the learning benefits, such as generating greater interest and understanding and retention of more of the subject matter than other approaches that advocate an individual study approach.

Challenge

In practical sessions, academics within the Creative Industries discipline of Journalism needed to combine about 40 third-year students who have two weeks experience, with 120 second-year students who were entering the journalism newsrooms, as staff members, for the first time. In line with pedagogical structures of collaborative learning, first- and second-year students were required to interact in various 'real world' and mentored roles in an enhanced learning experience.

It is true that staff in key supervisory roles are industry professionals (either teaching staff with industry experience or others hired from outside on a sessional basis) but they are the 'thin blue line' who must rely on the competencies and organisational understandings of students to produce programs to an acceptable standard and according to daily deadlines. Such an achievement, and its replication across an eight-week practical component, required the development of an accessible organisational system that was readily available for students to join and view as a guide to their work requirements and for supervisors to change to keep up with the eventualities of this television news room 'laboratory without walls'. So, in this case, the intersection of the 'virtual' with the 'actual' became crucial to the enterprise. The second-year students had dealt with the content of the tasks that they were required to accomplish within lecture and tutorial sessions, but only through discussion and abstracted representation rather than within the hands-on approach required in this practical component of the course.

Solution

The 'roster' or organisational chart that is contained in the Group Work Area Resource on the OLT system allows journalism television news supervisors to set and rotate the various tasks that students are required to perform to meet the pedagogical intent of the program. This means that the mentored approach wherein each student of various levels of ability are rotated through the coverage of state, national and international events, according to a pre-set formula; thus freeing the supervisors of the task of having to match students to tasks whilst maintaining a constant overview of the overall aims of the exercise. Such an approach allows for the allocation of quality supervision to enhance students capabilities, free from the need to constantly monitor and re-invent the system.

The incorporation of a Microsoft Excel spreadsheet into the online group work areas allows for the alteration of a students complete program through a change in a single field on the table. In a dynamic process, where a range of external factors (for example, absence of students who then need to make up shifts, and changes to the nature of number of tasks performed) constantly intervene such instant recalibration saves valuable supervisor time and relieves student stress over organisational factors so that they can get on with the gathering, processing and producing of television news reports for the nightly news bulletin.

In short, the integration of such a 'virtual' system into the 'actual environment' has enhanced teaching (and the necessary practical adjunct) in a way, and to a standard, that would not be possible, without such a coincidence of technologies. Journalism is continuing to develop and progress the approach, which, the staff conclude, is in initial stages of development.

Case 3—Groups of One

Context

The Creative Industries Faculty at QUT has approximately 180 postgraduate students studying a range of masters and doctoral courses. At present, there are no clear opportunities for these students to interact within an open-ended self-regulated structure and timeframe in order to collaborate, share, find information, and participate in a postgraduate community.

Challenge

The challenge was to provide a structure that is flexible enough to provide all postgraduate students with an opportunity to, in a timely fashion, access resources pertinent to their particular research area, as well as to provide a secure space for a personal material, reflections, work in progress and that this structure was customisable and accessible from multiple locations.

Solution

A web site was established—'CI PostGrad oZONE'—where each postgraduate student was provided with a public online space and a private online space. This online area, referred to as 'My Research Scrapbook', provided a structure for exploring synergies possible through a collaborative learning environment. The public space incorporated material such as course and candidature details, a research overview, information regarding supervisors, contact details and a biography and any other information the students wanted to share. The public space was also utilised to provide various points of intersection regarding common interest areas across the cohort. The private space was created using the OLT Group Work Area Resource and was utilised as a secure space online in order to capture various reflections regarding the research and also the students' research journey. The opportunity also existed for students to move various resources such as articles, images and reflections between their private and public spaces.

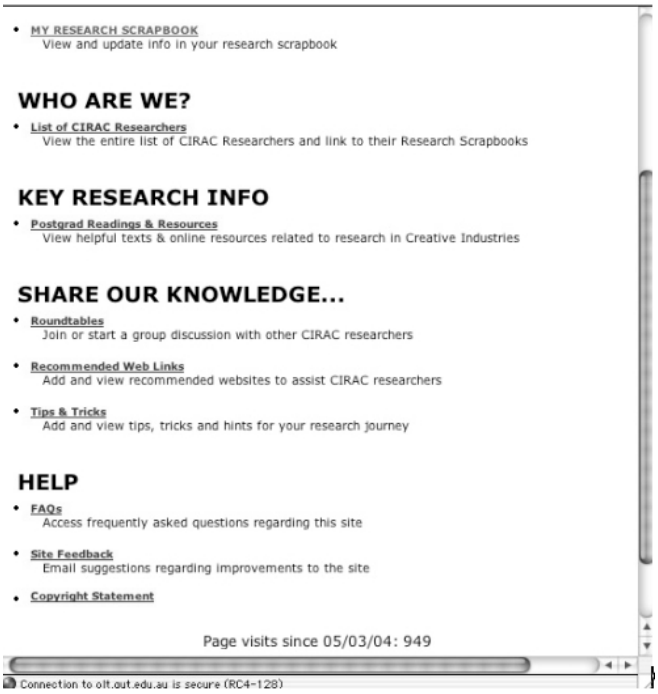

Illustration 2: Screen capture of PostGrad oZone

Various synergies between the postgraduate student cohorts were developed by providing a collaborative learning environment outside of the structure of a specific task. This open-ended online community environment provided postgraduate students within Creative Industries with the ability to access a network of shared experience regarding quite pragmatic resources regarding studying at a postgraduate level and also shared personal understandings of the research journey.

Conclusion

Collaborative learning fosters the development of critical thinking through discussion, clarification of ideas, and evaluation of others' ideas. However, for collaborative learning to be effective, the SME must view teaching as a process of developing and enhancing students' ability to learn. The pedagogical scenarios described above illustrate various collaborative learning interactions. In the development of virtual integrated learning environments, several factors must be considered:

- Temporality, where the interactions were synchronous or asynchronous.
- Number of participants where interactions were 'one to one'; or 'one to all' and '"all to all'.
- Social interactions motivated by perceptual factors, such as interpersonal attitudes and relation of roles, and the influence of these on factors such as effort, confidence and independence.
- Group composition; heterogeneous versus homogeneous.
- Group selection and size.
- Structure of collaborative learning.

- Amount of teacher intervention in the group learning process.
- Differences in preference for collaborative learning associated with gender and ethnicity.
- Differences in preference and possibly effectiveness due to different learning styles.

The SME's role is to serve as a facilitator for learning not to transmit information. This involves creating and managing learning experiences and stimulating students' thinking through real world problems. Environments must be adopted not only due to their technical innovativeness, but also within an integration of the medium with appropriate learning objectives, collaborative learning possibilities and pedagogical strategies. This paper has presented three integrations of the medium (the Group Work Area Resource developed with QUT's Online learning and teaching system) with learning objectives and pedagogical strategies to create virtual integrated learning environments.

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